Abstract

Author: Bc. Kateřina Karšayová

Title: Evaluation of dynamic postural stability in climbers

Objectives: The main objective of this diploma thesis is to investigate the difference of dynamic postural stability in between climbers and recreational athletes and measure all the data by computerised dynamic posturography Smart EquiTest System from Neurocom Incorporated.

Methods: This is a quantitative cross-sectional study involving 40 participants aged between 22 and 29 years divided into two groups (climbers, non-climbers). Measurements of dynamic postural stability were performed on Neurocom Smart EquiTest in the Kinesiological Laboratory of Charles University, Faculty of Physical Education and Sport. *Motor Control Test, Sensory Organization Test* and *Limits of Stability* test batteries were chosen for this study. The measured data was subsequently processed by Neurocom Balance Manager Software. The following statistical methods were used to analyze the data obtained by Neurocom: Shapiro - Wilk test, Student´s t-test, Mann – Whitney test and Cohen´s d effect size.

Results: A statistically significant difference (in favor of climbers) was found in COND6 of Sensory Organization Test, where p-value was 0,04. In Motor Control Test there was a statistically significant difference (in favor of climbers) in shift forward in medium speed for left leg, where p-value was 0,01. On the contrary a statistically significant difference (in favor of nonclimbers) was found in Limits of Stability test, where Directional Control had p-value 0,04.

Keywords: Dynamic postural stability, climber, EquiTest, computerized dynamic posturography, posture